

Insecta, Hymenoptera, Vespoidea, Pompilidae, *Epipompilus aztecus* (Cresson, 1869): First record in South America

Rogério Silvestre*, Tiago Henrique Auko and Vander Carbonari

Universidade Federal da Grande Dourados, Programa de Pós-graduação em Entomologia e Conservação da Biodiversidade, Laboratório de Ecologia de Hymenoptera. Rodovia Dourados Itahum Km 12, Cidade Universitária. CEP 79804-970. Dourados, MS, Brazil.

* Corresponding author. E-mail: rogeriosilvestre@ufgd.edu.br

ABSTRACT: The genus *Epipompilus* occurs throughout the Neotropical region, United States, Australia and New Zealand. South American members of this genus appear to have evolved separately from the others Pompilidae for a considerably time. *E. aztecus* was initially recorded only for Mexico and Central America. Our record expands the distribution of *E. aztecus* to South America, bringing new perspectives to the biogeography of spider wasps.

Spider wasps of the genus *Epipompilus* (Kohl, 1884) occur in the entire Neotropical region, in the United States (Florida), Australia and New Zealand. The taxonomy of this genus is problematic; there is no consensus about its distribution in time and space. This genus exhibits unusual and apparently primitive structural traits within the Pompilidae (Evans 1961; 1962). Evans examined over 100 specimens, recognized thirteen American species, described three new species from South America, and proposed two groups: *aztecus* (Cresson, 1869) and *delicatus* Turner, 1917. Among those species, seven were recognized based on specimens of both sexes, five based only on females, and one species was recognized based only on one male (Evans 1967). Fernández and Sharkey (2006) recognized 16 *Epipompilus* species in the Neotropics.

Pitts *et al.* (2005) in a phylogenetic analysis of the Pompilidae, concluded that the Epipompilinae (*sensu* Shimizu, 1994) is not an independent subfamily, and ascribed the genus *Epipompilus* to the Ctenocerinae.

Epipompilus aztecus (Cresson, 1869) is characterized by the presence of whitish spots on the second and fifth metasomal tergites. Up to now, there are records of *E. aztecus* only for Central America; Mexico, Guatemala and Panama (Evans 1966; 1967; Fernández 2000). However, we collected three specimens in Serra da Bodoquena National Park (Figure 1), state of Mato Grosso do Sul, Brazil (20°46'56.2"S, 56°44'31.2"W), in the riparian forest of the Salobra River (Figure 2). One specimen of *E. aztecus* (Figure 3) was captured with Malaise trap, and two specimens were captured with Möerick trap (yellow pad). Voucher specimens were deposited in the Hymenoptera collection of Museu de Biodiversidade da Universidade Federal da Grande Dourados (Mubio-UFGD). This work was carried out under a collection permit from IBAMA (number 10674-11/09/2007).

Serra da Bodoquena National Park is a federal reserve located in the state of Mato Grosso do Sul, Brazil, in the transition of Cerrado and Pantanal biomes. The vegetation

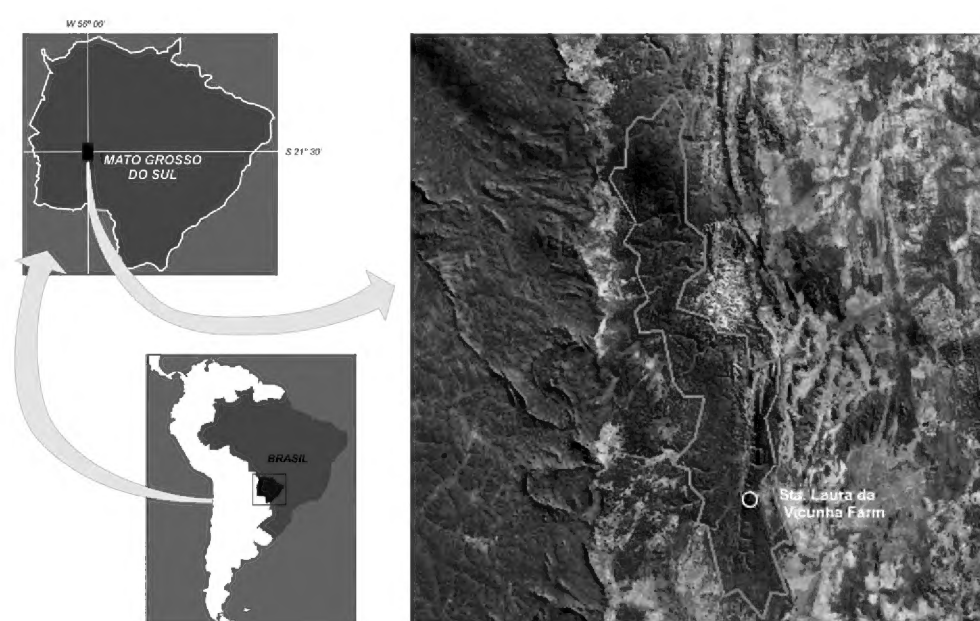


FIGURE 1. Northern region of Serra da Bodoquena National Park, state of Mato Grosso do Sul, Brazil. The white circle indicates the site where *Epipompilus aztecus* was collected.

in the region comprises sub-montane deciduous seasonal forest, ecological ecotones between savannah and semi-deciduous seasonal forest, Cerrado, floodplain fields, riparian forests, rocky fields and pastures (Alvarenga *et al.* 1982; Pott and Pott 2003). The region has tectonic structures related to Paraguay fold belt, in the shape of isoclinal folds associated with thrust faults. The central portion is characterized by an elevated rock mass, with a maximum altitude of 770 m a.s.l., where expositions of calcite limestones from karstic formations are predominant (Boggiani *et al.* 1993). The climate is tropical wet and dry (type Aw, according to Köppen's classification). Annual average temperature varies between 20 °C and 22 °C, maximum temperatures are between 35 °C and 40 °C, and minimum temperatures reach 0 °C. Average humidity is 40%, rarely reaching 80% in the summer. Annual rainfall varies from 1,300 mm to 1,700 mm. The warm and rainy season occurs between October and April, and the dry season occurs between May and September (Uetanabaro *et al.* 2007).

Prado and Gibbs (1993) pointed out that current

deciduous forest fragments are remnants of a previously broad distribution in the Americas during the dry Pleistocene. In the region of Bodoquena Mountain Range, there is one of the last large remnants of deciduous seasonal forest in Brazil (Pott and Pott 2003). Morrone (2006) believes that the biotic components represent a primary stage of biogeographic homologies, and the presence of some taxa indicates space-temporal relationships in the evolutionary history.



FIGURE 2. Riparian Forest along the Salobra River, Serra da Bodoquena, state of Mato Grosso do Sul, Brazil.

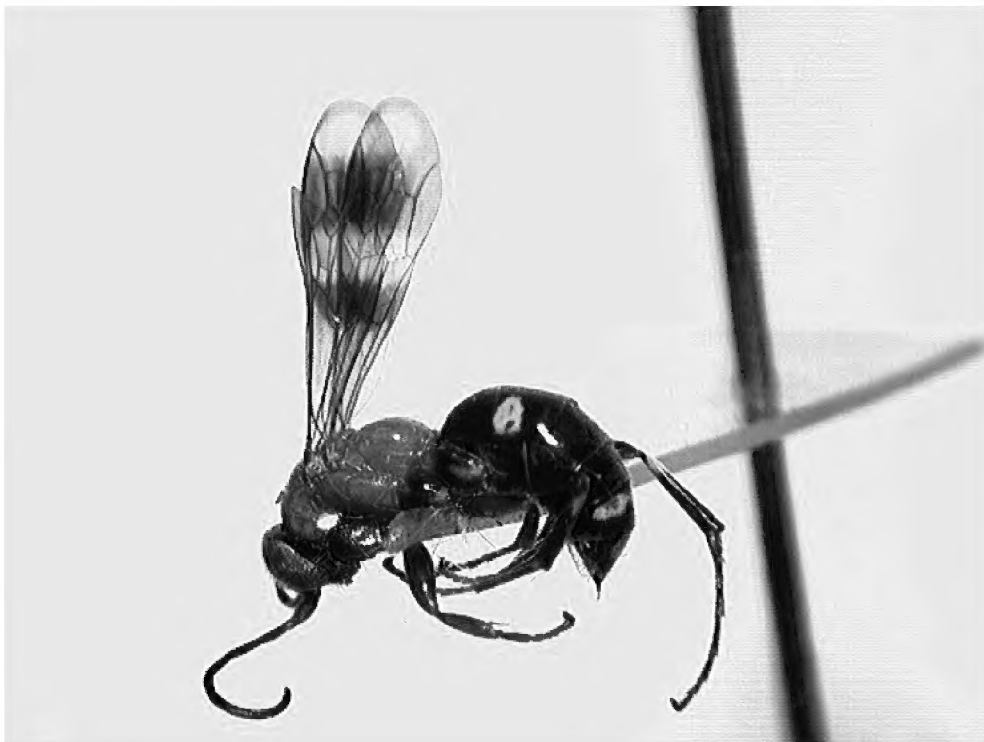


FIGURE 3. *Epipompilus aztecus* (Cresson, 1869)

Our record expands the distribution of *E. aztecus* to South America, bringing new perspectives to the biogeography of spider wasps.

ACKNOWLEDGMENTS: We are grateful to Eduardo F. dos Santos, Sergio Andena, and Fernando Fernández for comments to the manuscript. We would also like to thank Dione Seripierri (MZUSP), and Joelson Gonçalves Pereira (UFGD). We thank the members of the “Exército de Libertação da Natureza”, our research group from the Hymenoptera Ecology Laboratory (Hecolab/UFGD). We would also like to thank Instituto Chico Mendes de Biodiversidade- ICMbio in Bonito, MS; the Fundação de Apoio ao Desenvolvimento do Ensino, Ciência e Tecnologia do Mato Grosso do Sul- FUNDECT-MS; and to CNPq for granting the authors an MSc scholarship.

LITERATURE CITED

- Alvarenga, S.M., A.E. Brasil and D.M. Del'Arco. 1982. Geomorfologia; p. 125-184. In IBGE. *Levantamento de Recursos Naturais*, 28, Campo Grande, Folha SF-21. Rio de Janeiro: IBGE.
- Boggiani, P.C., T.R. Fairchild and A.M. Coimbra. 1993. O grupo Corumbá (Neoproterozóico-Cambriano) na região central da Serra da Bodoquena (Faixa Paraguai) Mato Grosso do Sul. *Revista Brasileira de Geociência* 23: 301-305.
- Evans, H.E. 1961. A Reconsideration of the genus *Epipompilus* (Hymenoptera: Pompilidae). *Psyche* 68: 25-37.
- Evans, H.E. 1962. The Genus *Epipompilus* in Australia (Hymenoptera: Pompilidae). *Pacific Insects* 4 (4): 773-782.
- Evans, H.E. 1966. A revision of the Mexican and Central American spider wasps of the subfamily Pompilinae (Hymenoptera: Pompilidae). *Memoirs of the American Entomological Society* 20:1-442.
- Evans, H.E. 1967. Studies on Neotropical Pompilidae (Hymenoptera) III. Additional Notes on *Epipompilus* Kohl. *Breviora* 273:1-15.
- Fernández, F. 2000. Avispas cazadoras de arañas (Hymenoptera : Pompilidae) de la región Neotropical. *Biota Colombiana* 1(1): 3-24.
- Fernández, F. and M.J. Sharkey. 2006. *Introducción a los Hymenoptera de la Región Neotropical*. Bogotá: Sociedad Colombiana de Entomología y Universidad Nacional de Colombia. 894 p.
- Prado, D.E. and P.E. Gibbs. 1993. Patterns of species distributions in the dry seasonal Forest of South America. *Annals of the Missouri Botanic Garden* 80: 902-927.
- Pitts, P.J., M.S. Wasbauer and C.D. Von Dohlen. 2005. Preliminary morphological analysis of relationships between the spider wasp subfamilies (Hymenoptera: Pompilidae): revisiting an old problem. *Zoologica Scripta* 35(1): 63-84.
- Pott, A. and V.J. Pott. 2003. Espécies de Fragmentos Florestais em Mato Grosso do Sul; p. 26-52 In R. B. Costa (ed.). *Fragmentação Florestal e Alternativas de Desenvolvimento Rural na Região Centro-Oeste*. Campo Grande: UCDB.
- Uetanabaro, M., F.L. Souza, P. Landgraf Filho, A.F. Beda and R.A. Brandão. 2007. Anfíbios e répteis do Parque Nacional da Serra da Bodoquena, Mato Grosso do Sul, Brasil. *Biota Neotropica* 7(3): 279-289.
- Morrone, J.J. 2006. Biogeographic areas and transition zones of Latin America and the Caribbean Islands based on panbiogeographic and cladistic analyses of the entomofauna. *Annual Review of Entomology* 51: 467-494.
- Shimizu, A. 1994. Phylogeny and classification of the family Pompilidae (Hymenoptera). *TMU Bulletin of Natural History* 2:1-142.

RECEIVED: April 2010

REVISED: May 2010

ACCEPTED: July 2010

PUBLISHED ONLINE: October 2010

EDITORIAL RESPONSIBILITY: Ana Lúcia Tourinho